

SECTION II

WING GROUP

2-1. GENERAL.

2-2. DESCRIPTION. (See Figure 2-1.) The wing is a full cantilever type composed of two panels joined at Station 0 (airplane center line). Two stub spars, front and center, extend from Station 0 to Station 50 on each side, enclosing the fuel tanks. The main landing gear wells are just aft of the center spar. Skin panels of the wing lower rear surface are bent up and flanged to form the rear spar. Wing flaps and ailerons are hinged to this beam. Removable wing tips of 5250 aluminum alloy complete the wing.

2-3. ALIGNMENT. Repair jigs for the wing panels, ailerons and flaps may be fabricated from the basic jig dimensions shown at the end of this section, Figures 2-7 through 2-9.

2-4. ACCESS FOR REPAIRS. Access to the interior may be gained through the wheel wells and three access doors, one aft of the landing gear strut, another near the gas tank vent, and the third at Station 130 forward of the aileron hinge. If there is any extensive structural damage, it may be necessary to remove the skin.

NOTE

The close-out strip on the bottom surface is easily removed and replaced and gives access to most parts of the wing interior. This strip lies between stringers number five and six. It is in two parts, from the landing gear well to the aileron control access door and from the access door to the wing tip.

Openings may be made in the skin and repaired as described in paragraphs 2-8 through 2-16.

2-5. WING SKIN.

2-6. DESCRIPTION. (See Figure 2-2.) The skin panels are riveted to stringers and skin attachment flanges of ribs with modified brazier head rivets. All joints are lap joints. All skin is 24ST alclad.

2-7. NEGLIGIBLE DAMAGE. Smooth dents free of cracks or abrasions located anywhere on the wing skin may be disregarded, provided the dents do not exceed a depth of 1/8 inch and 1-5/8 inches in diameter and adjacent dents are at a distance of 15 inches. Dents exceeding the above limits, and subsequently bumped back to contour without cracking or creasing the skin may be considered negligible damage. Scratches which do not penetrate beyond the alclad coating may be considered negligible damage.

2-8. DAMAGE REPAIRABLE BY PATCHING.

2-9. GENERAL. Any damage in the skin which exceeds that specified in paragraph 2-7 may be repaired by patching. Flush type repairs must be used on the leading edge, aft to the first lap joint. Flush or external patches may be used on the remainder of the wing skin.

2-10. RIVET REQUIREMENTS FOR PATCHING. The wing skin is divided into three groups, depending upon skin stress intensity, and the groups are identified by the Roman Numerals I, II and III on Figure 2-2.

2-11. RIVETS FOR PATCHING, TYPE I, SKIN PANELS. (See Figure 2-2.) Repairs for all Type I wing skin panels must be riveted with AN470AD5 rivets. The spacing is permitted to vary between 3/4 of an inch minimum to one inch maximum, to permit picking up of existing rivet holes. Flush repairs require one row of rivets through the skin panel and doubler and one row through the doubler and flush patch, maintaining a minimum edge distance of 5/16 inch. If an external patch is used, one row of AN470AD5 rivets are required at the above spacing through the patch and skin.

2-12. RIVETS FOR PATCHING, TYPE II, SKIN PANELS. (See Figure 2-2.) Repairs for all Type II wing skin panels must be riveted with AN470AD5 rivets and the spacing is permitted to vary between 3/4 inch minimum to one inch maximum. Flush repairs require two rows of rivets through the skin panel and doubler and two rows through the doubler and flush patch, with 5/8 inch between rivet rows and 5/16 inch minimum edge distance. If an external patch is used, two rows of AN470AD5 rivets are required at the above spacing through the patch and skin.

NOTE

When the central portion of the doubler has not been removed for weight saving, only one row of AN470AD5 rivets is required through the doubler and flush patch at approximately one inch spacing. Two rows of rivets are still required through the skin panel and doubler.

2-13. RIVETS FOR PATCHING, TYPE III, SKIN PANELS. (See Figure 2-2.) Repairs for all Type III wing skin panels must be riveted with AN470AD5 rivets and the spacing is permitted to vary between 3/4 of an inch minimum to one inch maximum. Flush repairs require three rows of rivets through the skin panel and doubler and three rows through the doubler and flush patch, with 5/8 inch between rivet rows and 5/16 inch minimum edge distance. If an external patch is used, three rows of AN470AD5 rivets are required at the above spacing through the patch and skin.

NOTE

When the central portion of the doubler has not been removed for weight saving, only one row of AN470AD5 rivets is required through the doubler and flush patch at approximately one inch spacing. Three rows are still required through the skin panel and doubler.

2-14. ACCESS DOOR CLEAR OF INTERNAL STRUCTURE. Damage to the wing skin of Group No. I clear of internal structure may be repaired by installing a removable access cover plate. Access doors also may be installed to facilitate repairs to the structure. See Figure B-1 for description of access door and paragraph 2-11 for rivet requirements. The cover plate must be a close fit to provide a smooth surface. To install the access door, remove the damaged area by cutting a circular or rectangular hole, leaving sufficient skin to allow for the installation of the doubler. Plate nuts and screws are substituted for rivets in attaching the cover plate to the doubler. The plate nuts on the doubler may be installed prior to its installation. Rivet the doubler to the existing skin and install the cover plate. If desired, an